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1 [Engineering Applications: A collaborative framework for integrated part and assembly modeling](#)

Rafael Bidarra, Niels Kranendonk, Alex Noort, Willem F. Bronsvort

June 2002 **Proceedings of the seventh ACM symposium on Solid modeling and applications**Full text available: [pdf\(8.79 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

An ideal product modeling system should support both part modeling and assembly modeling, instead of just either of them as is the case in most current CAD systems. A good basis for such integration is multiple-view feature modeling, as it allows focusing on different aspects of the product, while at the same time maintaining the consistency among all model views. This paper presents a framework that supports synchronous collaborative sessions via the Internet, among members of a distributed dev ...

Keywords: assembly modeling, collaborative design, feature modeling, integrated product modeling, part modeling

2 [Mu3D: a causal consistency protocol for a collaborative VRML editor](#)

Ricardo Galli, Yuhua Luo

February 2000 **Proceedings of the fifth symposium on Virtual reality modeling language (Web3D-VRML)**Full text available: [pdf\(614.28 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


This paper describes the implementation of the Mu3D application protocol and consistency control mechanisms to allow the collaborative editing of CAD design. The collaborative editor (M3D editor) developed by us is VRML compliant. The editor has been used as a base for the European Esprit project No. 26287 - M3D and the Spanish project TEL 96-0544/CODI for Cooperative CAD applications. In our system, only the changes to local databases are transmitted to other collaborative sessio ...

Keywords: CAD, VRML, architecture, distributed virtual environments, multicasting

3 [VIRTUS: a collaborative multi-user platform](#)

Kurt Saar

February 1999 **Proceedings of the fourth symposium on Virtual reality modeling language**

Full text available:  [pdf\(4.09 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: VRML, VRML event model, architecture construction engineering (ACE), collaborative virtual environment (CVE), computer supported collaborative work (CSCW), dead reckoning, distributed environments, living worlds, multi-user technologies, virtual environments, virtual worlds

4 Design and evaluation of a conit-based continuous consistency model for replicated services

Haifeng Yu, Amin Vahdat

August 2002 **ACM Transactions on Computer Systems (TOCS)**, Volume 20 Issue 3

Full text available:  [pdf\(406.85 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The tradeoffs between consistency, performance, and availability are well understood. Traditionally, however, designers of replicated systems have been forced to choose from either strong consistency guarantees or none at all. This paper explores the semantic space between traditional strong and optimistic consistency models for replicated services. We argue that an important class of applications can tolerate relaxed consistency, but benefit from bounding the maximum rate of inconsistent access ...

Keywords: Conit, consistency model, continuous consistency, network services, relaxed consistency, replication

5 A concurrency control framework for collaborative systems

Jonathan Munson, Prasun Dewan

November 1996 **Proceedings of the 1996 ACM conference on Computer supported cooperative work**

Full text available:  [pdf\(1.28 MB\)](#)



Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: collaborative systems, concurrency control, consistency criteria, coupling, merging, transactions

6 Collaborative multimedia scientific design in SHASTRA

Vinod Anupam, Chandrajit L. Bajaj

September 1993 **Proceedings of the first ACM international conference on Multimedia**

Full text available:  [pdf\(294.05 KB\)](#)  [ps\(96.77 KB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

7 Client-server computing in mobile environments

Jin Jing, Abdelsalam Sumi Helal, Ahmed Elmagarmid

June 1999 **ACM Computing Surveys (CSUR)**, Volume 31 Issue 2

Full text available:  [pdf\(233.31 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Recent advances in wireless data networking and portable information appliances have engendered a new paradigm of computing, called mobile computing, in which users carrying portable devices have access to data and information services regardless of their physical location or movement behavior. In the meantime, research addressing information access in mobile environments has proliferated. In this survey, we provide a concrete framework and categorization


of the various way ...

Keywords: application adaptation, cache invalidation, caching, client/server, data dissemination, disconnected operation, mobile applications, mobile client/server, mobile computing, mobile data, mobility awareness, survey, system application

8 Computer support for distributed collaborative writing: defining parameters of interaction

Christine M. Neuwirth, David S. Kaufer, Ravinder Chandhok, James H. Morris

October 1994 **Proceedings of the 1994 ACM conference on Computer supported cooperative work**

Full text available:  pdf(1.00 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper reports research to define a set of interaction parameters that collaborative writers will find useful. Our approach is to provide parameters of interaction and to locate the decision of how to set the parameters with the users. What is new in this paper is the progress we have made outlining task management parameters, notification, scenarios of use, as well as some implementation architectures.

Keywords: collaborative writing, computer-supported cooperative work, parameters of interaction, synchronous/asynchronous

9 Chimera: hypermedia for heterogeneous software development environments

Kenneth M. Anderson, Richard N. Taylor, E. James Whitehead

July 2000 **ACM Transactions on Information Systems (TOIS)**, Volume 18 Issue 3

Full text available:  pdf(864.32 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Emerging software development environments are characterized by heterogeneity: they are composed of diverse object stores, user interfaces, and tools. This paper presents an approach for providing hypermedia services in this heterogeneous setting. Central notions of the approach include the following: anchors are established with respect to interactive views of objects, rather than the objects themselves; composable, n-ary links can be established between a ...

Keywords: heterogeneous hypermedia, hypermedia system architectures, link servers, open hypermedia systems, software development environments

10 Novel techniques and cheat detection: Scalable peer-to-peer networked virtual environment

Shun-Yun Hu, Guan-Ming Liao

August 2004 **Proceedings of ACM SIGCOMM 2004 workshops on NetGames '04: Network and system support for games**

Full text available:  pdf(289.84 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


We propose a fully-distributed peer-to-peer architecture to solve the scalability problem of Networked Virtual Environment in a simple and efficient manner. Our method exploits locality of user interest inherent to such systems and is based on the mathematical construct *Voronoi diagram*. Scalable, responsive, fault-tolerant NVE can thus be constructed and deployed in an affordable way.

Keywords: Voronoi diagram, interest management, massively multiplayer (MMP), networked virtual environment (NVE), peer-to-peer (P2P), scalability

11 JPernLite: an extensible transaction server for the World Wide Web

Jack J. Yang, Gail E. Kaiser

May 1998 **Proceedings of the ninth ACM conference on Hypertext and hypermedia : links, objects, time and space---structure in hypermedia systems: links, objects, time and space---structure in hypermedia systems**

Full text available:  [pdf\(1.37 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

12 LegionFS: a secure and scalable file system supporting cross-domain high-performance applications

Brian S. White, Michael Walker, Marty Humphrey, Andrew S. Grimshaw

November 2001 **Proceedings of the 2001 ACM/IEEE conference on Supercomputing (CDROM)**

Full text available:  [pdf\(499.88 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Realizing that current file systems can not cope with the diverse requirements of wide-area collaborations, researchers have developed data access facilities to meet their needs. Recent work has focused on comprehensive data access architectures. In order to fulfill the evolving requirements in this environment, we suggest a more fully-integrated architecture built upon the fundamental tenets of naming, security, scalability, extensibility, and adaptability. These form the underpinning of the Le ...

13 Continuous program optimization: A case study

Thomas Kistler, Michael Franz

July 2003 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 25 Issue 4

Full text available:  [pdf\(877.67 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

Much of the software in everyday operation is not making optimal use of the hardware on which it actually runs. Among the reasons for this discrepancy are hardware/software mismatches, modularization overheads introduced by software engineering considerations, and the inability of systems to adapt to users' behaviors. A solution to these problems is to delay code generation until load time. This is the earliest point at which a piece of software can be fine-tuned to the actual capabilities of the ...

Keywords: Dynamic code generation, continuous program optimization, dynamic reoptimization

14 MPICH-V: toward a scalable fault tolerant MPI for volatile nodes

George Bosilca, Aurelien Bouteiller, Franck Cappello, Samir Djilali, Gilles Fedak, Cecile Germain, Thomas Herault, Pierre Lemarinier, Oleg Lodygensky, Frederic Magniette, Vincent Neri, Anton Selikhov

November 2002 **Proceedings of the 2002 ACM/IEEE conference on Supercomputing**

Full text available:  [pdf\(204.28 KB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Global Computing platforms, large scale clusters and future TeraGRID systems gather thousands of nodes for computing parallel scientific applications. At this scale, node failures or disconnections are frequent events. This Volatility reduces the MTBF of the whole system in the range of hours or minutes. We present MPICH-V, an automatic Volatility tolerant MPI environment based on uncoordinated checkpoint/rollback and distributed message logging. MPICH-V architecture relies on Channel Memories, C ...

15 TeamRooms: network places for collaboration

Mark Roseman, Saul Greenberg

November 1996 **Proceedings of the 1996 ACM conference on Computer supported cooperative work**

Full text available:  [pdf\(1.07 MB\)](#)


Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: GroupKit, groupware, shared electronic spaces

16 Distributed Open Inventor: a practical approach to distributed 3D graphics

Gerd Hesina, Dieter Schmalstieg, Anton Fuhmann, Werner Purgathofer

December 1999 **Proceedings of the ACM symposium on Virtual reality software and technology**

Full text available:  [pdf\(1.52 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Distributed Open Inventor is an extension to the popular Open Inventor toolkit for interactive 3D graphics. The toolkit is extended with the concept of a distributed shared scene graph, similar to distributed shared memory. From the application programmer's perspective, multiple workstations share a common scene graph. The proposed system introduces a convenient mechanism for writing distributed graphical applications based on a popular tool in an almost transparent manner. Local variations ...

Keywords: computer supported cooperative work, concurrent programming, distributed graphics, distributed virtual environment, scene graph, virtual reality

17 Consistency in replicated continuous interactive media

Martin Mauve

December 2000 **Proceedings of the 2000 ACM conference on Computer supported cooperative work**

Full text available:  [pdf\(63.04 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


In this paper we investigate how consistency can be ensured for replicated continuous interactive media, i.e., replicated media which change their state in reaction to user initiated operations as well as because of the passing of time. Typical examples for this media class are networked computer games and distributed VR applications. Existing approaches to reach consistency for replicated discrete interactive media are briefly outlined and it is shown that these fail in the continuous domain ...

Keywords: consistency, replicated continuous interactive media

18 Energy-efficient computing for wildlife tracking: design tradeoffs and early experiences with ZebraNet

Philo Juang, Hidekazu Oki, Yong Wang, Margaret Martonosi, Li Shuan Peh, Daniel Rubenstein

October 2002 **Proceedings of the 10th international conference on Architectural support for programming languages and operating systems**, Volume 37, 30, 36 Issue 10, 5, 5

Full text available:  [pdf\(1.51 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Over the past decade, mobile computing and wireless communication have become increasingly important drivers of many new computing applications. The field of wireless sensor networks particularly focuses on applications involving autonomous use of compute, sensing, and wireless communication devices for both scientific and commercial purposes. This paper examines the research decisions and design tradeoffs that arise when applying wireless peer-to-peer networking techniques in a mobile sensor network ...

19 Brave new topics - session 1: multimedia service composition: A taxonomy for multimedia service composition

Klara Nahrstedt, Wolf-Tilo Balke

October 2004 **Proceedings of the 12th annual ACM international conference on Multimedia**

Full text available:  [pdf\(272.55 KB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The realization of multimedia systems still heavily relies on building monolithic systems that need to be reengineered for every change in the application and little of which can be reused in subsequent developments even for similar applications. Hence, building complex large scale multimedia systems is still a difficult and challenging problem. Service-based architectures, like researched in the Web community, form a possible solution to this problem: The service-based paradigm decomposes co ...

Keywords: multimedia service composition, service-oriented architectures

20 Applications: Situational visualization

David M. Krum, William Ribarsky, Christopher D. Shaw, Larry F. Hodges, Nickolas Faust
November 2001 **Proceedings of the ACM symposium on Virtual reality software and technology**

Full text available:  pdf (1.12 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we introduce a new style of visualization called *Situational Visualization*, in which the user of a robust, mobile visualization system uses mobile computing resources to enhance the experience and understanding of the surrounding world. Additionally, a Situational Visualization system allows the user to add to the visualization and any underlying simulation by inputting the user's observations of the phenomena of interest, thus improving the quality of visualization for the ...

Keywords: dynamic databases, location and time-specific user input, location-specific services, mobile users and collaborators, real-time acquisition and insertion of data, synchronized databases

Results 1 - 20 of 200

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